73-15

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

73-15 7/11

Foreign Fisheries Leaflet No. 73-15

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

JUL 12 1973
FISH & WILDLIFE SERVICE

MARINE FISHERIES OF NORWAY, 1972

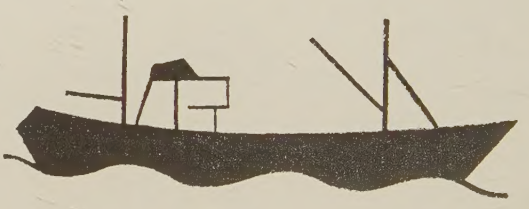
Salvatore Di Palma

International Activities Staff

WASHINGTON, D.C.
June 1973

NORWAY

VARDO
TROMSO
NARVIK
BODO
MO
NAMSOS
TRONDHEIM
KRISTIANSUND
MOLDE
ALESUND
OSLO
BERGEN
HAUGESUND
STAVANGER
KRISTIANSAND



CONTENTS

Summary 2
Cod and codlike species 2
Species for reduction 3
Deepwater shrimp 4
Exports 5
Negative EC decision 5
Exports 1972 6
Export outlook for 1973 6
Processing 6
Competition for supplies of cod 6
Minced fish developments 8
Freezing versus salting or drying cod, etc. 8
Fish meal and oil industry 9
Fishing limits 10
Private associations 11
Norwegian Fishermen's Organization 11
First-hand sales organizations 11
Export associations and committees 12
Vessel owner groups 11
Fish processors associations 12
Pertinent national and international regulations 12
Limited entry 12
Conservation regulations 13
Subsidies 13
Fishing fleet and fishermen 13
Fishing fleet 13
Fishermen 15
Outlook for 1973 landings and future stocks 15
Spawning and Finnmark cod 15
Capelin 16
Evaluation of future stock abundance 16
Outlook for exports in 1973 16

MARINE FISHERIES OF NORWAY

by Salvatore Di Palma

SUMMARY

The Norwegian fisheries had one of its best years in 1972. Landings were 2,852,000 metric tons, second only to the record in 1967. The value of exports reached a record US$375.9 million; higher prices for cod and saithe products contributed to the record. Failure to join the European Community (EC) will affect only about 12 to 15 percent of the Norwegian exports of fishery products, even without any expected concessions. In June 1972, the government was given authority to limit entry of vessels into the fisheries. Norway agreed to international limits on fishing for herring and salmon.

Different views are expressed on the fishing limits question. Despite a strong effort to secure wider limits, the government decided in 1972 to await the outcome of the Law of the Sea Conference.

LANDINGS

In 1972, landings of fish and shellfish were 2,852,000 tons, valued at US$225 million, second highest in both quatity and value compared with the record 3,037,000 tons in 1967 and the US$235.6 million value in 1971. Cod and codlike species, plus species for reduction (such capelin, herring, horse mackerel, and sardinella), accounted for the major share of the landings (table 1). Increased shrimp landings were worth a record US$8.3 million.

Cod and codlike species. Landings totaled 506,718 tons worth US$118.8 million in 1972. Cod accounted for three-fourths of the value of such species. The cod fishery is divided into three main fisheries -- spawning cod, Finnmark cod, and other cod. The season for the spawning and Finnmark cod is over by June. The famous Lofoten cod fishery alone yielded 97,900 tons gutted spawning fish, the best year since 1951.

Cod landings are shown below according to the main methods of processing.

Year	Freezing	Salting	Drying
	-----Metric tons-----		
1972	107,094	153,837	25,947
1971	123,622	126,253	44,059

S. Di Palma is the Regional Fisheries Attache for Europe with headquarters at the United States Embassy, Copenhagen, Denmark.

Saithe or coalfish (Gadus virens) was the second most important species in this group. In 1972, landings were 124,000 tons worth $17.2 million. With saithe resources believed capable of greater yield, public and private efforts are being made to increase landings and exports through subsidy and export assistance.

Species for reduction. Landings of these species accounted for more than two-thirds the 1972 total by weight. In recent years, capelin has been the single most important species in this category (1,556,228 tons); all but a neglible amount (including some exports of frozen capelin) went to the reduction plants.

The herring fishery is in reality a number of fisheries based on several stocks and varies with season, cycles, and geographic locations. In 1972, herring landings were used as follows: reduction - 119,909 tons; salting - 12,855 tons; fresh consumption - 9,262 tons; freezing - 7,813 tons; canning - 4,349 tons; and bait - 1,868 tons. The fat herring, fjord herring, winter herring, and small herring are primarily used for human consumption whereas the largest part of the North Sea herring landings goes to reduction.

Trawl catches of Norway pout from the North Sea showed a rising share with record landings of 157,263 tons compared with 143,371 tons in 1971. The mackerel catch by purse seine was subjected to limitations. The total catch including the net fishery reached 160,242 tons down from 229,411 in 1971. About 125,000 tons of mackerel were used in fish meal in 1972. Norwegian fishing vessels fishing off West Africa delivered 176,371 tons of sardinella and horse mackerel to the factory ships NORDGLOBAL and ASTRA. This was a decrease from the 198,729 tons delivered in 1971.

Table 1.--Norway landings of fish and shellfish, 1971 and 1972

Species	1971		1972	
	Tons	Million U.S. dollars	Tons	Million U.S. dollars
Capelin	1,371,154	47.1	1,556,228	41.6
Cod	324,524	81.4	312,422	84.2
Cusk	11,924	2.8	13,734	1.8
Dogfish	18,454	2.5	19,934	2.9
Greenland turbot	9,216	2.5	9,324	2.8
Haddock	36,611	9.3	33,024	8.5
Herring	236,544	17.1	155,511	9.1
Ling	14,225	4.8	17,844	5.9
Ocean perch	4,000	.7	5,361	1.1
Mackerel	229,411	16.3	160,242	10.5
Norway pout	143,371	5.3	157,263	4.7
Polar cod	16,484	.3	387	-
Pollock	1,120	.2	752	.2
Saithe	107,872	13.9	123,581	17.2
Sardinella/Horse mackerel	198,729	9.0	176,361	6.7
Sand eels	2,106	.1	18,788	.5
Sprat	9,277	2.0	18,017	3.8
Shrimp 1/	7,787	6.6	10,147	8.3
Other	63,045	13.7	62,895	15.1
Total	2,805,854	235.6	2,851,815	224.9

1/ Pandalus borealis.
Source: Fiskets Gang, December 28, 1972.

Deepwater shrimp (Pandalus borealis). Production of northern shrimp reached a record 10,147 tons worth US$8.3 million in 1972, up from 7,787 tons worth US$6.6 million in 1971. The increase came from continued expansion of the Norwegian distant-water shrimp fishery in the Barents Sea and off Greenland. The Barents Sea fishery lasts from April to September and is worked mainly from Tromso. The distant-water fishery is pursued by vessels equipped with both peeling and other processing machines. The coastal shrimp fishery production averaged about 6,000 to 7,000 tons over the past few years.

Most of the catch is processed as frozen shrimp; lesser amounts are sold fresh or canned for export. With its great dependence on the United Kingdom (UK) market, the shrimp fishery may face market problems if no concession is obtained on the 20-percent duty to be gradually levied by the European Common Market (EC) on shrimp products. Most of the Norwegian shrimp is exported through Frionor.

EXPORTS - POSSIBLE EFFECTS OF DECISION NOT TO ENTER COMMON MARKET

Negative EC decision. The failure of Norway to enter EC should not affect markedly the exports of fish and shellfish. Only about 12 to 15 percent of the trade, primarily sales to UK, are seriously troubled. Some problems may be resolved in concessions to be negotiated with EC and others or by a re-direction of trade or changes in the finished product. On the other hand, entry would have facilitated exports to EC which took about 44 percent of the 1971 exports, by value.

The value of fish exports to UK alone accounted for 17 percent of the 1971 total. Table 2 shows main items that will be affected.

Table 2.--Principal Norway fishery products exported to United Kingdom

Products	1971 Million U.S. dollars	EC duty Percent ad valorem
Frozen haddock fillets	2.4	15
Frozen cod fillets	14.4	15
Canned fish	3.9	1/20
Shrimp, frozen peeled and boiled	3.1 12.7- 17.1	20
Hardened fats	2/85.0-115.0	17
Herring meal 3/	16.4	2
Herring oil 3/	65.0	0

Trade in frozen fish fillets and like products may be redirected from UK to the United States and Sweden; on the other hand, EC concessions are expected on selected products in this category. Increased competition can be expected in EC from Danish sales of frozen and fresh fish.

Exports of frozen peeled and boiled shrimp to UK and Denmark will be seriously hurt by the 20-percent EC duty; increased worldwide demand for shrimp may help overcome some difficulties. Norwegian exports of canned herring and other fish stand to lose a significant part of their UK market when the duty rises from zero to 20 percent or more.

Producers of hardened fats will be in considerable difficulty with the rise in duty from zero to 17 percent. Producers might find it more profitable to export crude or refined fish oils rather than sell to Norwegian processors. Herring meal exports will face only a 2-percent duty in EC but will lose the duty advantage in the UK market which they have had over fishmeal from Peru and other non-EFTA states.

1/ Duty for most canned fish.
2/ Estimated.
3/ Comparative advantage of 10 percent was held in the UK market against non-EFTA states, e.g., Peru.

Exports 1972. According to preliminary reports, exports of fish and shellfish were worth a record US$375.9 million in 1972, compared with US$342.8 million in 1971.

Exports of frozen cod fillets continued to decline whereas the quantity of exports of salted cod and codlike fish continued to rise (table 3).

Table 3.--Norway exports of cod and codlike products, 1970-72

Product	1970	1971	1972
		Metric tons	
Frozen cod fillets	78,334	63,193	44,354
Salted cod and codlike fish	19,637	29,987	40,374

Table 4 compares preliminary statistics for most, but not all, exports of fish and shellfish for 1971. Frozen fillet exports to the United States rose 6 and 21 percent in quantity and value, respectively, despite an overall decrease in quantity of 12 and 3 percent. (Some products previously included under frozen fillets were shifted to the prepared fish category.) Salt fish exports rose sharply, especially to Spain. The United States took half the exports of canned fish in both years. Fish meal exports rose only 12 percent in value compared with a 20-percent increase in quantity; most sales had been made at the low prices in the beginning of 1972 before news of the disastrous anchoveta season in Peru.

Export outlook for 1973. The volume of fish exported will most likely decline by a fair margin. The value of exports will depend upon whether price rises on cod products in the United States early in the year will offset part of the dollar devaluation and how much of the fish meal will be sold at the present high prices. If the trend in catches for the two main species, cod and capelin, during the first 3 months continues, the value of exports will most likely be down also but not as much as the volume.

PROCESSING

Meaningful current data on the pack of processed fish and shellfish products in Norway are difficult to obtain. Regular reports on Norwegian production and holdings of frozen and processed fish by individual products are not issued publicly.

Competition for supplies of cod and codlike fish. Frozen fish processors and the traditional salt, dried, and klipfish curers continue to vie with each other for supplies of cod and codlike fish. In general, the fishermen through their fishery organizations want to keep on good terms with both types of processor so that they will not be primarily dependent upon one type of processor or one kind of world market. Frozen fish processors claim that their growth is limited by uneconomic measures resulting from dividing supplies of raw fish, e.g., agreements to guarantee dried-fish curers special quotas. The cured fish operators claim that frozen fish operators use

Table 4. Norway. Exports of selected fish products, 1971-72 1/

Product	1971		1972	
	Tons	Million US$	Tons	Million US$
Frozen fillets:				
United Kingdom	22,198	17.1	19,787	17.7
United States	36,406	27.4	38,409	33.5
Other countries	42,480	32.4	29,877	24.3
Total	101,084	76.9	88,073	75.5
Salted fish (except herring):				
Spain	5,603	3.3	15,839	11.1
Other countries	24,861	13.9	25,297	17.6
Total	30,464	17.2	41,136	28.7
Dried fish:				
Italy	5,118	7.7	5,403	10.1
Other countries	7,284	8.1	8,156	9.5
Total	12,402	15.8	13,559	19.6
Klipfish:				
Portugal	12,914	12.4	12,342	13.2
Brazil	20,113	17.5	18,677	17.4
Other countries	23,552	20.0	26,191	22.3
Total	56,579	49.9	57,210	52.9
Canned fish:				
United States	12,893	16.1	14,893	19.7
Other countries	12,698	13.5	11,370	13.6
Total	25,591	29.6	26,263	33.3
Other prepared fish 2/:				
Total	9,098	5.9	18,855	14.9
Prepared and preserved crustaceans & mollusks:				
United Kingdom	1,011	3.6	1,180	3.9
Other countries	549	2.2	796	2.7
Total	1,560	5.8	1,976	6.6
Fish oil:				
United Kingdom	41,305	9.8	49,459	7.9
Other countries	1,421	.3	19,954	2.4
Total	42,726	10.1	69,413	10.3
Fish meal:				
United Kingdom	84,314	17.4	90,538	17.5
Other countries	234,491	46.9	291,324	55.2
Total	318,805	64.3	381,862	72.7
Other products, total	80,512	35.2	94,712	42.0
Grand total	678,821	310.7	793,059	356.5

1/ Preliminary data. 2/ In Par. 1604, but not hermetically sealed.
Note: Table includes most exports of fish products.
Source: Norway's Monthly Bulletin of External Trade, December 1971 & 1972.

"unfair" tactics to secure fish and favor trawling to the traditional line and net fishing.

Minced fish developments. A growing interest was noted in producing blocks from minced fish, especially fish flesh recovered from otherwise wasted pieces or portions. Frionor uses the term "Friochip" blocks for frozen fish blocks made from minced fish. Both Frionor and the Nordic Group recognize the importance of maintaining the strictest quality control on minced fish products. A more rapid growth in the production of minced fish is inhibited by low prices and buyer resistance. Representatives of both these two export groups which sell in the United States said that the U.S. price of about 23 US cents per lb. for frozen blocks made from minced fish was much too low compared with about 50 cents per lb. for blocks made from whole fillets.

FREEZING VERSUS SALTING OR DRYING COD AND CODLIKE FISH

Because of the seemingly inexhaustible demand for frozen fish blocks and fillets from cod and codlike species in the United States, factors influencing the end use of such species in the coastal fisheries are worth reviewing.

Factors determining how the raw fish will be used include quality and size of fish, available labor, and capacity of freezers. Low-quality fish cannot be used for frozen fish but makes adequate second-grade products. Prime salted cod requires large fish. Fixed prices for large cod are nearly the same for fish for freezing and for salting, whereas fixed prices are substantially higher for medium and small cod destined for freezing.

The world demand for white fish products is increasing rapidly, and the supply is beginning to level off, as many processors realize. With the supply of cod and other white fish decreasing in Norway, greater attention will probably be given to the use made of the raw fish. The managing director of Frionor is quoted as saying that a higher degree of processing will be necessary to compensate for lower quantity of raw fish and that it will be more difficult in the future to obtain the raw fish than to sell the processed product.

World markets for salted and dried cod products have strengthened in recent years. Improved economic conditions in Brazil have helped the demand for klipfish. Spanish and other Mediterranean markets for salted fish continue strong. On the other hand, heavy fishing for cod in traditional areas of the Northwest Atlantic has reduced supplies of cod available from that area. The number of vessels in the salted cod fishery has decreased in the changeover to frozen fish production.

The traditional small Norwegian salting and drying operations benefit from a benevolent government policy. Measures such as subsidies, favor small-craft operations inside 12 miles. Many small-boat fishermen, especially in the remote areas, deliver to the numerous small plants along the coast. The government can require delivery to certain types of processors, e.g., dried fish processors were guaranteed 20,000 tons of raw fish for 1973. The

first-hand sales organization controls delivery by the small-boat fishermen. The policy of these organizations is to assure that the different processors get adequate supplies of raw fish and thus prevent Norwegian dependence on one type of processed fish exports, such as frozen fillets.

The traditional dried and salted fish processors have benefited from low investment costs, plus the ability to use part-time fishermen and shore employees in seasonal operations. However, the declining number of part-time fishermen and increasing investment costs do not bode well for these traditional processors.

The better plants that process frozen fillets and blocks are located near available service facilities and labor. Many plants require a steady supply of raw fish and often compete with one another for fish. A number of firms own coastal fresh-fish trawlers or have contractual arrangements with trawler owners. The plants also buy fish from inshore fishermen. Direct dealing between fishermen and freezing plants has been tactically permitted although the first-hand sales organizations are said to be watching the situation closely.

The government decision to limit the size and number of trawlers inside the 12-mile zone has been bitterly condemned by the frozen fish processors. In early 1973, a dispute arose between the government and Findus because the government refused to license a new trawler recently delivered to Findus under a multivessel deal made a few years ago. The vessel was to be added to the fleet fishing for the Hammerfest plant, which Findus claims is operating at a loss because of inadequate supplies of raw fish.

FISH MEAL AND OIL INDUSTRY

Norway's fish meal and oil industry consumes the major share of the landings. Capelin, herring, Norway pout, and mackerel provide the bulk of the raw material for reduction. A substantial quantity of fish offal, especially cod liver, is used for reduction. In 1971, about 25,000 tons of fish liver residue (left after oil has been removed from cod livers) was used for fish liver meal.

The industry has about 75 factories along the entire coast. The catch taken by the 500 to 600 purse seine vessels is sold through several fishermen's sales organizations. By law, all Norwegian meal and oil is sold through A/L Norsildmel, a central sales group in which all processors are shareholders.

Prices for raw fish reduction are fixed annually. If the export prices received are higher than expected, the extra receipts go into an equalization fund. The fund is used to make up the difference when the market for meal and oil declines. If the fund is at high level, the surplus is paid out with 80 percent going to the fishermen and 20 percent to the factory. If prices of meal and oil drop and the fund is not capable of supporting the annual fixed price for raw fish, the annual price is reduced.

The adequacy of fish stocks is always a problem. More efficient gear and the large capacity of Norwegian and foreign vessels has quickly harvested large year classes of herring and other species. At present, capelin supplies the bulk of the fish used for reduction. Norwegian fishermen have been criticized for allegedly fishing excessively on stocks of fish that would have been better utilized for direct human consumption. The need for greater international control has been accepted, and Norwegian fishermen are subject to a number of conservation regulations, e.g., fishing North Sea herring for reduction is prohibited from February 1 to June 15, 1973.

During the past several years, a number of Norwegian seiners fished for two large fish meal factory ships, the NORGLOBAL and the ASTRA, off the coast of Northwest Africa. Recent extensions of fishing and territorial water limits have forced a contraction of the fishery. The NORGLOBAL participated in the early 1973 capelin fishery in North Norway but had difficulties concerning licensing arrangements.

The prosperity of Norway's reduction industry has varied with the availability of fish stocks, the production of meal and oil in Peru, and competition with products like soybean meal and oil. The possible effect of another potential competitor, protein derived from petroleum consuming organisms, has often been debated. In early 1973, British Petroleum and its partner announced the awarding of a contract to build a plant in Sardinia reportedly capable of producing 100,000 tons of protein per year by 1975.

FISHING LIMITS

The question of fishing limits is widely debated in Norway. Proponents of wider limits appear to have strong support. The government that came to power in the fall of 1972 seemed ready to listen to demands for a 50-mile limit. Delay in declaring wider limits was attributed to an official decision to await the results of the UN Conference on the Law of the Sea, scheduled for 1973/74, but a heavy increase in foreign fishing off the Norwegian coast could upset this decision.

The present fishing limit, 12 nautical miles parallel to prescribed base-lines, was established March 24, 1961. By 1971, all foreign vessels had been phased out of the 12-mile zone.

In fishery circles, a controversy exists between those fishing in Norway's coastal waters and those fishing in waters off foreign coasts. Norges Fiskarlag, the politically powerful Norwegian fishermen's organization, is almost solidly for 50-mile limits. Exclusive fishing rights in Norway's coastal areas are considered part of the essential requirements of North Norway to maintain the economic and social life of inhabitants in the area.

Fishermen and others in southern Norway believe that a 50-mile limit would not be more advantageous off considerable stretches of the coast because the deep Norwegian undersea trench greatly reduces bottom fishing between 12 and 50 miles. There is also some feeling that the North Sea fishery resources

should be subject to agreement among North Sea countries.

The owners of large trawlers and seiners whose vessels fish in waters off other countries are, as expected, opposed to wider limits. The Norwegian Fishing Vessel Owners Association claims that major herring, mackerel, and cod fisheries will be closed to them if other nations extend limits to 50 miles. Already restricted inside Norway's 12-mile zone, trawler and seiner owners are against Norwegian actions that would stimulate retaliation by foreign nations. Support industries like shipbuilding and ship chandlering are also said to be opposed to wide limits.

Norway's important commercial shipping community is seriously concerned that wider fishing limits lead to wider territorial waters and restrictions on the freedom of the seas.

PRIVATE ASSOCIATIONS

The fishermen in Norway are a more powerful force in the industry than are the fishermen of most other countries. Fishermen and vessel owners wield power through Norges Fiskarlag (NF) and the first-hand sales organizations.

Norwegian Fishermen's Organization. NF is a nationwide group comprising fishermen and owners of small vessels and boats. Local unions, based on regional groupings, elect delegates to the national conference, which deals with technical, social, and economic matters important to the members. Cooperation between NF and the government fishery administration is very close, especially in such matters as fixing minimum prices and subsidies. Norges Fiskarlag is undoubtedly the single most important force in the Norwegian fisheries. NF's role in the first-hand sales organizations is a main source of its power.

First-hand Sales Organizations. Nearly all the fish taken by Norwegian fishermen are sold through first-hand sales organizations pursuant to the Raw Fish Act of 1951. Catches by some distant-water vessels are handled differently. The organizations must be open to all fishermen concerned. Exclusive right to sell all fish are vested in the organization. Buyers who do not meet sales terms may be disapproved. The groups have the right to stop or restrict fishing if catches are too large to handle ashore.

They can establish their own, or participate in, processing plants and export firms. In most instances, fish are sold at fixed prices with adjustments being made later; however, the auction method is also used, especially for fresh-fish sales. The 13 first-hand sales organizations are based on regions or species. The Norwegian Raw Fish Sales Organization, a regional group based in northern Norway, accounted for about $100 million in sales of fish other than herring and herringlike species in 1971; the Fat Herring Sales Organization, Harstad, sold 1,244,000 tons of fish, mostly for reduction.

Export associations and committees. The export of fishery products is carried out through a somewhat complicated structure of export committees and export associations with industry and government participation. The processing and export of fishery products is regulated and controlled by the Export Act 1955. One proviso is that an exporter must be a member of a specific association in order to export. The associations themselves are controlled by specially appointed committees which, among other things, can determine the market which a specific association may sell. The 1955 law also permits the government to take other measures, e.g., set quotas and minimum prices, and impose a duty or fee on exports. The measures were introduced to prevent Norwegian exporters from competing with one another in foreign markets and to deal with problems like import restrictions and currency questions.

Thus exports of frozen groundfish fillets and blocks are only authorized through exporters belonging to Frionor, the Nordic group, or Findus. The latter is a private firm that is not permitted to sell frozen fillets to the U.S. market. There are 18 or so export sales associations and 11 export committees based primarily on product. One association handles sales to countries with state trading, and another handles second-hand sales from processors to exporters. Norsildmel A/L handles all export sales of fish meal and oil. The export committees for frozen fish and fillets and for other products are headed by government officials.

Vessel owner groups. The two main vessel owner groups are the Fishing-Boat Owners Association and the Norwegian Trawling Association. The former comprises the ocean fishing vessels including seiners, distant-water longline vessels, sealers, and factory ships. The associations are opposed to some NF policies, especially that on fishing limits.

Fish processors' associations. Under the Processors Act of 1970, sales organizations with the sole right to the marketing of processed fish products can be established. One organization UNIDOS has the sole right to market klipfish, salted fish, and stockfish from processors in North Norway.

PERTINENT NATIONAL AND INTERNATIONAL REGULATIONS

Limited entry. The passage of Law No. 57, June 16, 1972, was probably the most significant action in 1972. The law gives the government the authority to limit the issuance of licenses to new fishing vessels and, thereby, entry into the fishery. The basic reason given for the law was that authority is needed to prevent uneconomic overcapacity in segments of the fleet and for the rational exploitation of fishery resources. Among other criteria, vessel size, fishery, and fishing technique figure in the vessel licensing decision. Out of 50 trawl-fishing concessions requested for 1973, the Fisheries Department approved only 8 --1 factory ship of 8,000 GRT factory ship, 2 299 GRT fresh-fish trawlers, and 5 new trawlers to replace existing vessels. Additional concessions may be issued during the year if warranted.

Conservation regulations. Norwegian fishermen were affected by several international regulations to conserve fishery resources. The most important were those for several herring fisheries that had been heavily overfished. Among measures introduced to protect and build up the Northeast Atlantic and North Sea stocks were closed seasons, gear limitations, and quotas for food and industrial use.

Of special interest to the United States was Norwegian acceptance of the 1972 salmon proposal made by the International Commission for the Northwest Atlantic Fisheries, which among other things, provided for a phase-out of Norwegian salmon fishing in the Northwest Atlantic over a 4-year period. Fishing for salmon off the Norwegian coast is also subject to international regulations; efforts are being made to reduce and end high-seas salmon fishing off the Norwegian coast.

SUBSIDIES

Subsidies are given in the fishing industry for a variety of purposes. The 1973 budget of the Norwegian Fishery Department shows that US$34.7 million in subsidies were given in 1971, US$30.1 million approved for 1972, and US$27.1 million proposed for 1973. Of the 1971 payments US$6.4 million went to reduce costs of bait and equipment. Fishermen for cod, other bottom species, and even shrimp and crabs received US$10.8 million in subsidies or price compensations; fishermen for herring and herringlike species shared another US$7.8 million. The funds are channelled through the fishermen's first-hand sales organizations. The rest of the funds went to a number of purposes including subsidies to help finance vessel loans for active fishermen and for research processing and marketing.

Improvement of the livelihood of fishermen was the main reason for the subsidy program initiated in the 1960's. Subsidies are used to compensate fishermen when prices do not reach previously agreed levels and to offset cost of transprot from the fishing grounds to the buyer. The major share of the funds for cod is distributed as price supports; thus the greater the catch, the greater the subsidy. For herring, the major shares is for transport costs to the reduction factory.

According to some views, the more successful fishermen and the better located areas are reaping the largest reward from subsidies whereas comparatively the poorer regions are even further behind than before. Demands have been made for the subsidy program to put the primary emphasis on those coastal areas which allegedly need it most.

FISHING FLEET AND FISHERMEN

Fishing fleet. The Norwegian fishing fleet comprises many types of craft. In 1971, there were 7,840 decked steel and wood vessels, of which 750 were over 70 feet long. The purse seine fleet included 324 vessels over 80 feet long. The trawler fleet included nine factory trawlers. There were many traditional line and net vessels. Over 15,000 open boats were a part of the fleet.

Changes in resources, manpower availability, and processing requirements are slowly forcing changes in the fleet. Modification of the fleet is heavily influenced by the government's policy to foster the economic ans social well-being of North Norway. As part of this policy, priority is still given to active fishermen in the ownership of vessels and preference is given to fishing techniques favoring the traditional fishermen. Licensing preference and special subsidies are among measures used to favor vessel ownership by fishermen as opposed to ownership by private firms.

A 1972 law strengthened the government's licensing role and gave it the means to limit entry into much of the fishery. Reasons for the new law were concern about the long-term economics of the fleet, the effects of high fishing pressure on the resources in the area, and the maintenance of traditional fishing and fleet patterns.

The purse seine fleet was overbuilt during the 1960's, lured on by tremendous herring catches and by favorable tax laws on depreciation. Seiners were financed not only through regular fishery bank sources but also by shipbuilders and fuel firms. The present fleet is reportedly overall profitable only when catches or prices for meal and oil are very high.

The modern purse seiner is about 125 feet long, uses a power block, carries 400 to 600 tons of fish, and employs a crew of 12. The seiners fish primarily for the reduction factories though substantial quantities also are destined for human consumption.

The trawler fleet comprises vessels fishing stocks along the Norwegian coasts as well as a few vessels operating off the coast of other countries. The major difficulty of the fleet is in its conflict with the traditional Norwegian coastal fleet of smaller line and net vessels.

The question of trawling inside the 12-mile zone is one of the the main sources of dispute within the industry. Frozen fish processors maintain that traditional small line and net fishermen do not supply an adequate or steady supply of raw fish for plants to operate profitably on a year-around basis. Trawler owners maintain that they are losing money because of trawling limitations and other discriminatory measures. The Trawling Association is reported to be seeking government assistance.

The traditional small net and line fishermen maintain that trawling destroys the bottom and harms young fishes. In addition, they claim trawling is incompatible with net and line operations.

The government has leaned towards the traditional fishermen and has introduced measures to curtail and reduce trawling inside the 12-mile zone. Only a limited number of trawlers under 300 gross tons are permitted inside the zone; the few remaining 200-to 500-ton vessels will be phased out of the coastal zone by 1974.

The trawling versus traditional dispute is not ended. Even those in favor of the traditional fishermen realize that some solution must to be found to the question of the seasonality of much of the traditional fishing operation and to the need for year-round supplies by the modern processing plants. One solution suggested is a type of regional trawler company or association in which fishermen, plants, and others in the region would participate. A trawler in one region would not be able to fish in another region; thus it would prevent the heavy concentration of trawling effort at certain times when trawlers from all areas come to fish in the same area at the same time.

Fishermen. The number of persons involved in fishing continues to decline. From 61,000 in 1960, the number fell to 35,000 in 1971. Of these, 25,000 were full-time or main-occupation fishermen and the rest only part-time fishermen. Predictions are that the total number will drop to 15,000 by 1980 with the ratio of full-time fishermen increasing. The catch per fishermen has risen over the past years; better gear and improved fishing techniques are cited as the reasons.

Most fishermen are said to earn more than most skilled and unskilled land workers in Norway. Yet, there is a declining interest among the young to become fishermen and, as a result, the average age of fishermen has increased. To encourage the type of young men wanted for the fishing industry, training is being improved, earlier retirement (at 62 years) has been proposed, and even special tax advantages are being considered.

OUTLOOK FOR 1973 LANDINGS AND FUTURE STOCKS

Based on early trends, landings should be substantially down in 1973. Catches of both cod and capelin during the first 10 weeks of 1973 were behind those of the like period of 1972; the two species accounted for about 60 percent of the 1972 landings. In addition, renewal of the factory ship operation off West Africa is in doubt and the North Sea herring fishery is closed from February 1 to June 15.

Spawning cod and Finnmark cod. A large part of total cod landings are spawning and Finnmark cod. The two fisheries are over by June. Comparison of similar periods for 1973 and 1972 is a good indicator of total Norweigan landings of cod and the production of finished cod products for 1973 (table 5). Comparative data on spawning and Finnmark cod, gutted weight in metric tons, appear below.

Table 5.--Landings and use of spawning and Finnmark cod, 1973 and 1972 seasons

Destination	January 1-April 1, 1972	January 1-March 31, 1973
	Metric tons	Metric tons
Total landings	157,583	101,349
to filleting	29,991	19,419
to salting	99,509	54,681
to drying	12,270	17,110

Landings of spawning and Finnmark cod for the 1973 period are substantially below that of the 1972 period. Unless an upsurge in landings occurs during the rest of the 1973 season, the production will be substantially below the 1972 figure.

Capelin. Landings of capelin for reduction during January 1-March 31, 1973, were about 75 percent those for the comparative period for 1972. The 1973 production of meal and oil has been sold at substantially higher prices than that of the first part of 1972. Thus, even should the quantity landed decrease, higher prices will keep the value of the landings form declining proportionately.

Two other sources of reduction fish landings may also be down in 1973. International regulations prohibit fishing for herring in the North Sea for reduction from February 1 to June 15. In addition, the reduction fishery in connection with fish meal factory ships off West Africa will probably be reduced. How much will depend upon what agreement, if any, Norwegian interests will work out with the countries in the area concerning fishing inside the extended limits of said countries.

Evaluation of future stock abundance. In general, the overall outlook for fish stock abundance over the next few years point to lower landings of cod and reduction fish and continued dependence in the near future on capelin. The outlook for shrimp, sprat, and saithe is very good.

Outlook for Exports in 1973. The outlook for Norwegian fish exports in 1973 is not nearly as rosy as that for 1972. First of all, the amount of fish available for export is expected to be down. If the early pattern of lower production of frozen cod products continues, and important source of U.S. imported frozen fish fillets and blocks will have less supplies; 15 percent of such United States imports came from Norway in 1972.

Whereas world demand for fish products should remain strong, several negative factors have appeared. The effect of devaluation of the U.S. dollar and other currencies is yet uncertain. Prices for frozen fillets may increase enough to offset the effect of devaluation, but prices for klipfish and other products may not. Competition in the United States market from Canadian and Icelandic fish will be greater because those currencies also devalued. Danish exports of competing products to the EC market will benefit from a 20-percent drop in the EC duty on Danish products on April 1.

Norway's failure to join EC should not overly affect exports of fish and shellfish in the coming year. Early reports on the Norwegian-EC trade negotiations indicate that a concession has been agreed to on exports of frozen fish fillets. Danish officals were seeking further concessions for Norway on shrimp and hardened fats from fish oils.